CONTENTS OF VOL. 76 Nos 1–6

NUMBER 1—JULY

Kauzmann temperature of alloys obtained by different methods
By Q. Jiang, M. Zhao and X. Y. Xu 1

Trap-controlled dispersive transport in systems of randomly fluctuating localized states
By V. I. Arkhipov and G. J. Adriaenssens 11

Thin-film quantitative microanalysis of the cation composition in ceramics with ultrathin-window-type energy-dispersive X-ray spectroscopy in a transmission electron microscope
By J. Kondoh, S. Kikuchi, Y. Tomii and Y. Ito 23

Dielectric response in ferroelectric superlattices
By S. Li, J. A. Eastman, J. M. Vetrone, R. E. Newnham and L. E. Cross 47

Ferroelectric behaviours dominated by mobile and randomly quenched impurities in modified lead zirconate titanate ceramics
By Q. Tan, J.-F. Li and D. Viehland 59

Atomic simulation of amorphization and crystallization of Ni_3Al during rapid solidification
By H. B. Liu, K. Y. Chen, G. Y. An and Z. Q. Hu 75

Simulations of tensile fracture in thin films bonded to solid substrates
By K. M. Crosby and R. M. Bradley 91

Possibility of cold fusion in palladium deuterides: screening effects and connection to superconducting properties
By A. M. Gabovich 107

NUMBER 2—AUGUST

Resonant pair tunnelling and singular effects of *c*-axis disorder in cuprate and organic superconductors
By G. Baskaran 119

Proposed explanation of the anomalous doping characteristics of III–V nitrides
By S. N. Mohammad, A. E. Botchkarev, A. Salvador, W. Kim, O. Aktas and H. Morkoç 131

Self-consistent density-functional approach to the correlated ground states and an unrestricted many-body perturbation theory
By B. Farid 145

Effect of the starting amorphous structure on the solid-phase crystallization of silicon
By T. MOHAMMED-BRAHIM, M. SARRET, D. BRIAND, K. KIS-SION, L. HAJI, O. BONNAUD, D. LOUËR and A. HADJAJ 193

Thermodynamic nature of phase transitions in $Pb(Zr_xTi_{1-x})O_3$ ceramics near the morphotropic phase boundary. I. Structural studies
By S. K. MISHRA, A. P. SINGH and D. PANDEY 213

Thermodynamic nature of phase transitions in $Pb(Zr_xTi_{1-x})O_3$ ceramics near the morphotropic phase boundary. II. Dielectric and piezoelectric studies
By S. K. MISHRA and D. PANDEY 227

Jahn–Teller dynamics and properties of the manganites
By V. Z. KRESIN and S. A. WOLF 241

NUMBER 3—SEPTEMBER

Special Issue: Francesca Demichelis
By C. F. PIRRI, F. GIORGIS, A. TAGLIAFERRO and E. TRESSO 247

Structure, composition and electro-optical properties of n-type amorphous and microcrystalline silicon thin films
By R. MARTINS, A. MAÇARICO, M. VIEIRA, I. FERREIRA and E. FORTUNATO 249

Role of the deposition parameters in the uniformity of films produced by the plasma-enhanced chemical vapour deposition technique
By R. MARTINS, A. MAÇARICO, I. FERREIRA, J. FIDALGO and E. FORTUNATO 259

Band-structure determination by subgap spectroscopy in thin films of semiconductors
By I. SOLOMON 273

Impurity levels in phosphorus- and boron-doped amorphous silicon
By K. KÁDAS and S. KUGLER 281

Optical and photoluminescence properties of $a\text{-}Si_{1-x}N_x:H/a\text{-}Si_3N_4:H$ and $a\text{-}Si_{1-x}C_x:H/a\text{-}SiC:H$ superlattices
By F. GIORGIS 287

Amorphous and microcrystalline silicon films obtained by hot-wire chemical vapour deposition using high filament temperatures between 1900 and 2500°C
By J. P. CONDE, P. BROGUEIRA and V. CHU 299

Device-quality polycrystalline and amorphous silicon films by hot-wire chemical vapour deposition
By R. E. I. SCHROPP, K. F. FEENSTRA, E. C. MOLENBROEK, H. MEILING and J. K. RATH 309

Relaxation and crystallization of amorphous silicon carbide probed by optical measurements
By P. Musumeci, R. Reitano, L. Calcagno, F. Roccaforte, A. Makhtari and M. G. Grimaldi 323

Gap states in diamond-like amorphous carbon
By J. Robertson 335

Mechanical properties and Raman spectra of tetrahedral amorphous carbon films with high sp^3 fraction deposited using a filtered cathodic arc
By Shi Xu, D. Flynn, B. K. Tay, S. Prawer, K. W. Nugent, S. R. P. Silva, Y. Lifshitz and W. I. Milne 351

Electron paramagnetic resonance and relaxation in BN and BN:C
By M. Fanciulli 363

Thermal properties of porous silicon layers
By G. Benedetto, L. Boarino, N. Brunetto, A. Rossi, R. Spagnolo and G. Amato 383

On the role of germanium in porous silicon–germanium luminescence
By G. Amato, A. M. Rossi, L. Boarino and N. Brunetto 395

NUMBER 4—OCTOBER

Special Issue: Third International Workshop on Metastable Phases: Amorphous and Nanocrystalline Materials, Theoretical Aspects, Industrial and Technological Transfer
Bologna, Italy, 9–11 April 1996
Guest Editor: G. Valdrè, University of Bologna

Foreword
By E. Bonetti, D. G. Rickerby and G. Valdrè 405

Structure and diffusional properties of nanocrystalline Pd
By R. Würschum, K. Reimann, S. Grüß, A. Kübler, P. Scharwaechter, W. Frank, O. Kruse, H. D. Carstanjen and H.-E. Schaefer 407

Primary crystallization in an amorphous $Al_{88}Ni_4Y_8$ alloy
By X. Y. Jiang, Z. C. Zhong and A. L. Greer 419

Effects of diffusion and interaction phenomena in Fe–Al thin-film multilayers
By M. Carbucicchio, G. Palombarini, M. Rateo and G. Ruggiero 425

Phonon properties of transition-metal clusters
By G. D'Agostino 433

Magnetostriction in heterogeneous nanocrystalline materials
By A. Hernando, M. Vázquez, J. Arcas and J. M. García-Beneytez ... 441

Correlation effects among nanometre-sized clusters in Cu–Co melt-spun alloys with giant magnetoresistance
By P. Allia, P. Tiberto and F. Vinai 447

Dynamic properties of interacting γ-Fe_2O_3 particles
By D. Fiorani, J. L. Dormann, F. Lucari, F. D'Orazio, E. Tronc, P. Prené, J. P. Jolivet and A. M. Testa 457

The study of amorphous and nanocrystalline materials by neutron scattering methods
By N. Cowlam 463

A study of phase separation in metastable $Cu_{50}Fe_{50}$ alloys by neutron diffraction and neutron small-angle scattering
By S. Enzo, G. Mulas, R. Frattini, R. J. Cooper, N. Cowlam and G. Principi 471

Approach to the atomic structure of amorphous Al–Fe–Nb
By F. Audebert, H. Sirkin and A. Garcia Escorial 483

Influence of Mo addition in the crystallization of Fe–Si–B–Cu–Nb alloys
By C. F. Conde, V. Franco and A. Conde 489

Thermodynamic and mechanical properties of Zr-based bulk metallic glasses
By H. J. Fecht 495

Nanocrystallization in Al-based amorphous alloys
By Z. C. Zhong, X. Y. Jiang and A. L. Greer 505

Phase separation in amorphous Zr–Co and Zr–Fe alloys
By F. Gärtner, C. Michaelsen and R. Bormann 511

Cooperative atomic motion in metallic glasses
By L. D. van Ee, J. Sietsma and B. J. Thijsse 519

Crystallization and mechanical behaviour of bulk Zr–Ti–Ni–Cu–Be metallic glasses
By S. Spriano, C. Antonione, R. Doglione, L. Battezzati, S. Cardoso, J. C. Soares and M. F. da Silva 529

Structure evolution in metals bombarded with swift heavy ions
By P. M. Ossi 541

Microstructure and mechanical properties of a N^+ implanted Al alloy
By A. M. Serventi, M. Vittori Antisari, L. Guzman and A. Miotello 549

A model for the deformation of nanocrystalline materials
By H. Hahn and K. A. Padmanabhan 559

On the grain boundary and defect structure of nanocrystalline titanium oxide
By D. G. Rickerby 573

Properties of silicon-based ceramics produced by hot isostatic pressing ultrafine powders
By R. Vaßen and D. Stöver 585

Nanostructured metals produced by physical vapour deposition for structural and gas-reactive applications
By V. Provenzano and R. L. Holtz 593

Metastable magnesium titanate phases synthesized in nanometric systems
By J. Zabicky, N. Frage, G. Kimmel, N. Hazan, H. El-Fahel, E. Goncharov, E. Manor and R. Shneck 605

Characterization of metal quantum-dot composites by optical absorption spectroscopy
By F. Gonella, G. Mattei, P. Mazzoldi, F. Spizzo, A. Quaranta and G. De 615

Structure and chemistry of Ag–Cu nanoclusters in a silica matrix by the sol–gel process
By M. Catalano, E. Carlino, G. De, L. Tapfer, F. Gonella, P. Mazzoldi and G. Battaglin 621

Nanocrystalline Al–Fe alloys synthesized by high-energy ball milling
By F. Cardellini, V. Contini, G. Mazzone and A. Montone 629

Formation of metastable phases in Ni–43·5 at.% Mo powder mixtures during mechanical alloying and after heat treatment
By D. Oleszak, V. K. Portnoy and H. Matyja 639

Mechanical alloying of immiscible elements: experimental results on Ag–Cu and Co–Cu
By F. Delogu, M. Pintore, S. Enzo, F. Cardellini, V. Contini, A. Montone and V. Rosato 651

Preparation and thermal evolution of vapour-condensed nanocrystalline iron
By J. C. Sánchez-López, A. Justo, A. Fernández, C. F. Conde and A. Conde 663

Material properties and interfacial composition of thin films of TiN and Ti(C, N) physically vapour-deposited on iron
By M. Carbucicchio, C. Martini, G. Palombarini and M. Rateo 669

Structural relaxation and associated ΔE effect in the Fe–Cu–Nb–Si–B system
By E. Bonetti and L. Del Bianco 677

Magnetic properties of Ni–Co-based thick films investigated with magnetic force microscopy
By G. Bernardi, B. Morten, S. Pergolini, M. Prudenziati and G. Valdrè 687

NUMBER 5—NOVEMBER

Special Issue: International Summer School on Strongly Correlated Electron Systems held in Debrecen, Hungary, 1–7 September 1996

Foreword
By Z. GULÁCSI 695

κ-(BEDT-TTFX)$_2$X organics (BEDT-TTF ≡ bis(ethylenedithio)tetrathiafulvalene), as seen for Hubbardists
By V. IVANOV 697

A review of the real space renormalization group analysis of the two-dimensional Coulomb gas, the Kosterlitz–Thouless–Berezinski transition, and extensions to a layered vortex gas
By S. W. PIERSON 715

Fermi-liquid versus non-Fermi-liquid behaviour
By M. GULÁCSI 731

Strong-coupling superconductivity and high-T_c phenomenon
By A. S. ALEXANDROV 751

Spin fluctuation superconducting pairing in copper oxides
By N. M. PLAKIDA 771

Band ferromagnetism versus collective Kondo state in lattice fermion models
By P. FAZEKAS 797

The quantum Hall effect: unified scaling theory and quasiparticles at the edge
By A. M. M. PRUISKEN and K. SCHOUTENS 807

Pseudo-spin symmetry in the Hubbard model
By J. P. WALLINGTON and J. F. ANNETT 815

Two-dimensional Hubbard model close to half-filling
By I. P. MCCULLOCH and M. GULÁCSI 819

Hubbard model with next-nearest-neighbour interaction terms in higher dimensions: new, exactly solvable cases
By P. GURIN and Z. GULÁCSI 827

Possible d-like symmetry pairing states in the extended Hubbard model
By Z. SZABÓ and Z. GULÁCSI 833

Photoemission from a system of localized pairs on a cuprate lattice
By G. J. KAYE 839

Exact results related to the periodic Anderson model in the strong-coupling $U = \infty$ limit
By I. ORLIK and Z. GULÁCSI 845

Magnetic ordering in the one-dimensional Kondo lattice model
By G. HONNER and M. GULÁCSI 849

Thermodynamics and spin correlations for an Ising chain in a random transverse field
By O. DERZHKO, T. KROKHMALSKII and T. VERKHOLYAK 855

NUMBER 6—DECEMBER

Electron paramagnetic resonance study of the vanadyl ion in xCoO.$(1-x)$ ($ZnO.2B_2O_3$) glasses
By S. KHASA, D. PRAKASH, V. P. SETH, S. K. GUPTA and R. MURALI KRISHNA 859

Lithium intercalation into the tetradymite-type-selenides $Bi_{2-x}In_xSe_3$
By J. BLUDSKÁ, I. JAKUBEC, P. LOŠŤÁK and J. HORÁK 867

F and F^+ light emission thermally activated in sapphire (α-Al_2O_3)
By M. GHAMNIA and C. JARDIN 875

Antiferromagnetism and superconductivity
By A. BUSSMANN-HOLDER and A. R. BISHOP 887

Radiative relaxation time of quasinormal optical modes in small dielectric particles
By V. A. MARKEL and E. Y. POLIAKOV 895

Superconductivity in the extended Hubbard model with more than nearest–neighbour contributions
By Z. SZABÓ and Z. GULÁCSI 911

Diffusion of hydrogen isotopes in the cubic Laves phase Al_2Gd
By H. REULE, M. HIRSCHER and H. KRONMÜLLER 929

Quantitative *in situ* Kelvin probe study of boron doping in hydrogenated amorphous silicon and hydrogenated amorphous silicon carbide
By A. HADJADJ, P. ROCA I CABARROCAS and B. EQUER 941

Director textures of the Néel inversion wall in a liquid crystal polymer
By D.-K. DING, B.-Y. JIN, J. GUNTHER and E. L. THOMAS 951

Surface plasmon resonance studies on Langmuir–Blodgett films of novel octa-substituted metal-free phthalocyanine molecules
By A. K. RAY, A. K. HASSAN, M. R. SAATCHI and M. J. COOK 961

Diamond nanocrystals in hydrogenated amorphous carbon grown by ion sputtering of graphite
By V. I. IVANOV-OMSKII, V. I. SIKLITSKY, A. A. SITNIKOVA, A. A. SUVOROVA, A. V. TOLMATCHEV, T. K. ZVONARIOVA and S. G. YASTREBOV 973

Subject index 979

Index of authors (with titles of papers) 983